# FORCE AND TORQUE CONVERTER

Patent Number: WO9304348
Publication date: 1993-03-04
Inventor(s): HILTON JOHN A (US)
Applicant(s): SPACEBALL TECHNOLOGIES INC (US)
Requested Patent: WO9304348
Application Number: WO1992US06961 19920821
Priority Number(s): AU1991PK07992 19910823; US19890427931 19891025
IPC Classification: G01L1/24; G01L1/26; G01L5/16; G01L5/22
EC Classification: G06F3/033Z4S6, G06F3/033Z8D1, G01L1/24F, G01L5/16B, G01L5/16E, G01L5/22C, G06F3/033D
Equivalents:
Cited Documents: DE3835955; FR2211137; US4950116; EP0227432; GB2115935; JP62233822

## Abstract

A force and torque converter is provided which provides an electronic representation of a planarly applied force and a torque applied about an axis that is orthogonal to the plane. The converter includes a base, an actuating member which is relatively displaced in response to the applied torque and force, resilient mechanisms to provide a restoring force and torque to the actuating member, and sensing mechanisms to sense the applied torque and force and generate an electronic representation thereof. The electronic representation is characterized by a sensitivity curve in which relatively small applied forces and torques result in a relatively low scale factor and where for a range of small applied forces and torques the relation of scale factor with respect to applied torque and force has a relatively low derivative. Further, for a range of larger applied forces and torques, the sensitivity curve has a relatively large scale factor and a relatively large derivative. In one embodiment, the sensitivity curve is implemented by a processing mechanism which includes a microprocessor and firmware.